

## ABSTRACT

In a radio communication apparatus of the present invention, for example, a channel dividing unit (1) of a communication apparatus at a transmission side divides a transmission signal into a plurality of

5 channels based on "channel structure information indicating a method of structuring an MIMO channel" informed from a communication apparatus at a reception side. An STC (4) realizes transmission diversity according to STC processing for each channel after division. On the other hand, a channel estimating unit (15) of the communication

10 apparatus at the reception side estimates a channel between transmission and reception. Based on channel estimation results, a physical configuration of the communication apparatus at the transmission side, and a physical configuration of the communication apparatus at the reception side itself, a transmission-side

15 channel-structure determining unit (20) of the communication apparatus at the reception side determines a structure of an MIMO channel, and informs channel structure information that is a result of the determination to the communication apparatus at the transmission side.